Development and validation of stability indicating spectrophotometric methods for determination of sulbutiamine in tablet dosage form

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Abstract

Five sensitive, selective and precise stability-indicating spectrophotometric methods for the
determination of Sulbutiamine (SUL) in the presence of its alkali-induced degradation product (DEG) were
developed and validated. Method A is differential dual wavelength (D1DWL) applied in the analysis of SUL in
binary mixture via its first derivative spectra using the difference between two points with equal amplitudes in
the alkali-induced degradation product, thus DEG acts as zero contribution. Method B is second derivative
spectrophotometry (D2), which allowed the determination of SUL at 300.0 nm. Method C is second derivative
of the ratio spectra (DD2) in which SUL was determined by measuring the peak amplitude at 301.0 nm.
Method D is the ratio difference spectrophotometry (RD), where the difference between amplitudes of the
absorbance ratio spectra at 237.2 and 274.0 nm were recorded and Method E; Ratio subtraction (RSM) where
the zero order spectra of pure SUL were extracted from their laboratory prepared mixtures, and consequently
SUL can be analyzed at its maxima. The linearity for SUL was obtained within concentrations ranging from
5.00 - 50.00 εg/mL with percentage recovery of 100.58 + 0.98, 99.62 Ñ 1.16, 100.70 Ñ 1.38, 100.06 + 1.00
and 99.56 + 1.00 for the five methods, respectively.

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